

with separate and independent sluices at their junction with the Humber, by which means all the highland and lowland waters would be separated, and each body of water would thus be effectually discharged into the Humber without interfering with the other. The catch-water drains involved an important and novel principle, for in his opinion by the old Dutch method of simply cutting a series of straight drains to some convenient point, for discharging their water, the highland and lowland waters were mixed together, and the highland waters coming from a higher level with a greater velocity down upon the lowlands forced their way first to the outfall. The less rapid waters of the lowlands were thus kept back and were left to stagnate, the sluices being unable to discharge the whole body of water during the time when the tide with the Humber permitted the sluice doors to be opened, and it was thus impossible that the level could be drained; but by separating the highland from the lowland waters, each body of water could be effectually discharged by an independent sluice. These catch-water drains would answer all the important purposes of irrigation during dry seasons, and for navigation.

The plans, which were also at the same period being beneficially carried into effect by Mr. Rennie, and on a more extensive scale, in the east and west and Wildmore Fens, near Boston, and also on the Witham, near Lincoln, were partially executed, but the works not being completed, and, for want of funds, not being subsequently kept in repair, the drainage was found very insufficient, and at length Sir John Rennie was called in to complete the system. He proposed that the plans of his father should be carried out, that the Ancholme should be further improved, and a new sluice made at Ferraby, with a sill placed at a lower level, and new bridges made throughout the line; also, that an overfall and weir should be constructed, with a large reservoir to catch the sand, which was brought by floods from the surrounding hills, and had previously blocked up the main and lateral drains. Minor weirs and reservoirs were also recommended for the smaller drains and works where they united with the level. These works having been executed, the effect was that the drainage was rendered complete and effective, and the district was converted into a tract of fine arable land. Subsequently another sluice was constructed below Ferraby with its sill 2 feet below the low-water mark of extra spring-tides in the Humber. This sluice, which had three openings of 18 feet each in width, with draw-doors and self-acting gates, was perfect in its effect, discharging above four times the quantity of water in the same time that had been previously accomplished.

The whole of these works were completed by Sir John Rennie 43 years after Mr. Rennie's report, and 556 years after a regular system of drainage had commenced, and the district was freed from water without the aid of mechanical power, thus establishing what was contended to be the surest principle of drainage, the separating of the highland from the lowland waters by catch-water drains, and discharging them, independently of each other, by their several outfalls.

In an interesting discussion which ensued, the correctness of the principle was fully admitted, and it was shown that by selecting proper localities for the outfalls, and by placing the sills of the sluices below low-water mark of spring-tides, there were not any few districts in the kingdom that could not be drained without mechanical aid.

**REMOVAL OF THE WESTMINSTER LAW COURTS.**—Mr. Charles Buller has entered upon the banks of the House of Commons a notice of his intention, "after Easter, to ask a question relative to the removal of the Law Courts from Westminster."

**NEW CHURCH IN PETER-STREET, WESTMINSTER.**—A most liberal subscription has been entered into towards defraying the expenses incident to the erection of this church. The estimated cost of the site, including the site of a globe house adjoining the church, is nearly 4,000*l*. The estimated cost of the church, which is to contain 1,200 sittings, is 6,000*l*. The contributions already obtained amount to 7,900*l*. 10*s*. The amount still required is 1,400*l*.

## THE IRON TRADE.

The iron trade still continues remarkably active, and notwithstanding the recent advances, it is confidently expected that the prices will rise still higher before the close of the month. Speculators are turning their attention to Welsh pigs, which have not advanced in ratio to that of Scotch. Welsh pig is 6*l*. 10*s*.; and the latest accounts from Wales, Staffordshire, and Scotland advise of further advances of 5*s*. per ton upon pigs, and from 10*s*. to 30*s*. per ton upon bars, rods, hoops, and sheets. Staffordshire iron of every description is particularly rising, and has within the last week again advanced 20*s*. per ton, making a total increase of 4*l*. per ton on last October prices. 5*l*. 10*s*. is offered for Scotch pig, but few sellers are to be found; 6*l*. is demanded. Bars have advanced, and are now selling at from 9*l*. 10*s*. to 10*l*. per ton; plates at from 13*l*. to 13*l*. 10*s*.

It may be a matter of some interest in the present state of the trade to know the probable supply and consumption for the current year. For this purpose the following table has been drawn up with much labour, assisted by practical men:—

Estimated Consumption for 1845.		
2,000 miles of railways, to be made in 1845 and 1846—say, half in 1845 contracted for—		
1,000 miles of railway, 250 tons per mile for rails	250,000	
Add for loss of one-fifth, in covering pig-iron to rails	50,000	
1,000 miles of railway require, of chairs	70,000	
Add loss in manufacture, 5 per cent.	3,500	
Iron required for railways in progress, and passed in 1844	150,000	
Iron for waggons, stations, engines, tanks, &c., computed from inspection of railway companies accounts, that each mile of railway requires 300 tons per mile above the weight of permanent rails and chairs—1,000 miles will then give	300,000	
Export in 1844, 460,000 tons—say, from the increase of railways abroad, and the remission of duties on iron by some of the continental states, it will be	500,000	
General consumption of iron in Great Britain (exclusive of railways). In bar-iron, castings, water and gas pipes, in steam-engines, and the whole hardware of the country	480,000	
<b>Total</b>	<b>Tons 1,803,500</b>	

The following estimated supply for the same period is based upon the amount actually produced in Great Britain in 1844, to which is added a probable increase, induced by the high prices of the present year.

Pig-iron produced in England and Wales in 1844	Tons 856,000
Iron produced in Scotland, 1844	354,000
<b>Total for Great Britain, 1844</b>	<b>1,210,000</b>
Add for increase induced by high prices in 1845	120,000
<b>Total for 1845</b>	<b>Tons 1,330,000</b>

If this statement approaches the truth, there will be a deficiency of nearly 500,000 tons of iron, which must cause the suspension of many great public works. It is possible that from extraordinary exertions a greater quantity may be produced than 1,330,000 tons, but it cannot be materially greater.

**NEW CHURCHES, &c.**—The Society for promoting the enlargement, building, and repairing of Churches and Chapels, decided last week that grants should be voted towards the erection of new churches at Andershaw and Droyghden, near Manchester; Quarry Bank, near Stourbridge; Warmley, near Bristol; West Fordington, near Dorchester; and Wooden Box, near Ashby-de-la-Zouch. Grants of money were also made towards obtaining an increase of accommodation, either by an extension of the building, or a rearrangement of the seats, &c., in the parish churches of Whitechapel, Sedgehill, near Shaftesbury; Horningheath, near Bury St. Edmund's; Rudborton, near Haverfordwest; Colmore, near Alton; Lindfield, near Cuckfield; Osmington, near Aylescombe Regis; and Rudgwick, near Horsham.

## LIST OF NEW PATENTS RELATING TO ARCHITECTURE, ENGINEERING, &amp;c., GRANTED FOR ENGLAND.

Published by Mr. A. Prince, of the Office for Patents of Inventions, Lincoln's-Inn Fields.

[SIX MONTHS FOR ENROLLMENT.]

William Sonzell, of the Quadrant, blind manufacturer, for improvements in roller-blinds and shutters. February 4.

John Seaward, of the Canal Works, Poplar, engineer, for certain improvements in steam propelling machinery. February 5.

Darius Isaac Green, of Villiers-street, Strand, gentleman, for improvements in the means of raising and moving heavy bodies, parts of which are applicable, amongst other uses, to mines, vessels, and public works. February 8.

Robert Bewick Longridge, of Bedlington Iron Works, Morpeth, Northumberland, for an improved locomotive engine. February 10.

Frederick Herbert Maberly, of Stowmarket, Suffolk, clerk, master of arts, for certain improvements in machinery or the apparatus for stopping or retarding railway, or other carriages; applicable also for these purposes in regard to other engines or wheels. February 10.

Thomas Truman, of Cromwell Lodge, Brompton, gentleman, for an apparatus, being an improvement for filtering and purifying water. February 10.

Richard Haworth, of Bury, Lancaster, engineer, for certain improvements in steam-engines. February 10.

William Irving, of Regent-street, Lambeth, engineer, for improvements in the construction of apparatus for cutting ornamental forms, beads, recesses, and mouldings, in wood, stone, and other materials. February 10.

Oglethorpe Wakelin Barratt, of Birmingham, experimental chemist, for certain improvements in the manufacture of acids, and in treating the noxious vapours of gases given off from chimneys and from chemical and other works. February 10.

Joseph Quick, of Sumner-street, Southwark, in the county of Surrey, engineer, for an improvement in steam-engines. February 10.

Thomas Brown Jordan, of Cottage-road, Pimlico, mathematical divider, for improvements in machinery and apparatus for cutting, carving, and engraving. February 17.

James Graham, of Calvert-street, Middlesex, metal-reiner, for improvements in the manufacture of zinc, antimony, and brass, and in casting brass, and an apparatus for making pots used in such processes. February 17.

Samuel Hall, of King's-arms-yard, Coleman-street, for improvements in steam-engines, boilers, furnaces, and Buns, in consuming fuel, preventing smoke, and in propelling vessels. February 20.

James Murdoch, of Staple-inn, for certain improvements in the manufacture of gas, and in the apparatus employed therein. February 20.

John Bottom, of St. Phillips-road, Sheffield, machinist, for certain improvements in carpenters' stocks and braces. February 20.

John Baptiste Vallure, of Otenden-street, civil-engineer, for improvements in lamps and wicks. February 24.

**REAL PROPERTY.**—A return has been obtained by order of Parliament, on the motion of Mr. Villiers, shewing the total annual value of real property in each county of England and Wales assessed to the property and income-tax for the year ending April, 1843, distinguishing that on land, houses, tithe, manors, mines, quarries, manors, ironworks, fisheries, canals, railways, &c. It hence appears that in England and Wales alone the grand total annual value of real assessed property amounts to the enormous sum of 85,802,735*l*. thus subdivided, viz.,—lands, 40,167,000*l*. (or nearly one-half); houses, 35,556,399*l*.; tithe, 1,960,330*l*.; manors, 152,216*l*.; mines, 319,144*l*.; quarries, 207,009*l*.; fisheries, 1,903,794*l*.; iron works, 412,022*l*.; fisheries, 11,104*l*.; canals, 1,229,202*l*.; and railways, 2,417,609*l*.; other property not comprised in the foregoing, 1,466,815*l*. A similar return as to Scotland gives a grand total of 9,481,762*l*. viz.,—lands, 5,586,527*l*.; houses, 2,919,334*l*.; mines, 901*l*.; quarries, 33,474*l*.; fisheries, 17,592*l*.; iron works, 147,412*l*.; fisheries, 47,004*l*.; canals, 77,891*l*.; and railways, 181,333*l*. The other property not included in the foregoing details amounts to 309,400*l*.